September 2, 1948.

Dr. S. C. Rittenberg,
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Dear Dr. Rittenberg,

Thank you for your most interesting letter.

The methods which you tried to test recombination (or similar processes) in Salmonella had occurred to us, but we considered the serological approach unfeasible, as you found it to be in practice. For the application of the phage-selection method, we were hindered, unfortunately by our inability to secure from Madison sewage appropriate phage stocks. The phages which we were able to recover (for typhimurium) did not permit of the development of sharply resistant mutants, and experiments comparable to your own in which typhimurium of independent origin, and with initially different phage responses were used, did not give any evidence of exchange of phage-resistance characters: i.e., a mixture of phages lysed the entire population tested. You are to be congratulated on the promising outcome of the experiments which you wrote about, and we were very much interested to hear about them.

Since my last letter, we have developed a method which facilitates the isolation of biochemical mutants (and which I will be glad to send you if you have any further use for it), and with this method have succeeded in obtaining a large number of multiple mutants in further Salmonella strains. Two additional typhimurium cultures have been rather rigorously tested for recombination of biochemical factors, comparable to E. coli K-12, and with an equally disappointing conclusion. However, we intend to continue with these experiments.

We would, in view of your results, like very much to explore further the possibility of recombination in the S. poona and S. cholerae suis that you have been using, and would appreciate receiving those cultures, as well as the phages specifically active against them. I connection with your experiments, I assume that you have already examined a number of the phage resistant mutants which are produced by your individual cultures, and ruled out the possibility that such mutants have altered antigens.

We have some glutamic-less E. coli K-12, in the form of a double mutant with a threonine requirement. The mutant also responds to proline and to a-ketoglutarate. I am sending the wild type, K-12, threonineless 679, and threonine-glutamicless, 679-662, and hope they will satisfy your needs. We may have some others, but I cannot recall at the moment.

Yours sincerely,